

## Name That Term – Worksheet

Term	Definition
Board Lot	
Broker	
Capital Gain	
Capital Loss	
Collectible	
Commission	
Dividend	
Earnings per share	
Market Close	
Marketplace	
P/E Ratio	

Term	Definition
Profit	
Share	
Shareholder	
Share Price	
Stock	
Stock Exchange	
Trade	
Trader	
Trading Floor	
Yield	

## Why Buy Stocks? – Dividends & Capital Gains

You learned in earlier activities that savings accounts, GICs and T-bills do not yield very large growth rates. You discovered that much larger growth rates can sometimes be obtained in the long term by investing in collectibles, but these require special knowledge and tend to carry a much higher risk. In Activity 10, you saw that the long-term growth rate of Berkshire Hathaway stock was comparable to some of the most exceptional collectibles.

People invest in stocks to obtain a greater potential growth rate for their money while attempting to minimize their risk of loss. There are two ways to make money by owning a stock:

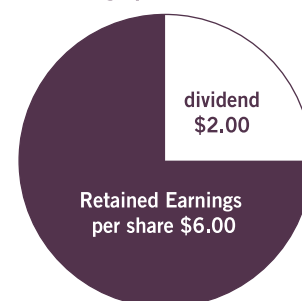
- receiving dividends – i.e., receiving a portion of the company's profit each year.
- realizing a capital gain – i.e., selling a stock at a higher price than you paid.

In this activity, we shall explore how many people assess stocks to increase the potential growth rate of their money while minimizing their risk of loss.

### Dividends

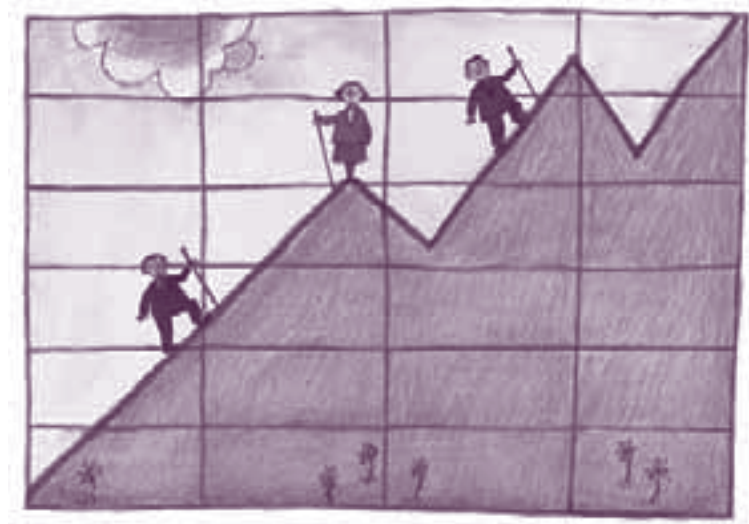
When a company is listed on a stock exchange, its shares are owned by the public at large and traded on that exchange. At the end of the company's financial year (called its *fiscal year*) its Board of Directors decides what portion of the company's profit should be retained in the company (called *retained earnings*) and what portion should be distributed to the shareholders. The amount per share paid to the shareholders is known as the *dividend*. The circle graph shows for one fiscal year how the Board of Directors of Ajax Industries allocated its profit.

Earnings per share \$8.00



### Discuss

- Explain what is meant by these terms: **a)** revenue    **b)** expenses    **c)** profit
- Explain the meaning of the equation: Profit = Revenue – Expenses
- What does it mean if expenses exceed revenue?
- Explain what is meant by these terms: **a)** earnings per share    **b)** retained earnings per share    **c)** dividends
- State an equation that expresses dividends in terms of earnings per share and retained earnings per share.



## Calculating Yield and Return on Investment

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### Capital Gains

Dividends are not the only benefit of owning a stock. You can also make a profit by selling the stock at a higher price than you paid. This profit is called a *capital gain*. (If you sell at a lower price than you paid, you suffer a *capital loss*.) People purchase stocks to earn money through dividends, capital gains, or both. To determine how much money a stock investment has returned per share, we add the capital gain (or loss) **per share** to the dividend (if any). To determine the *return on investment*, i.e., the growth of the investment as a percentage, we express the total earned per share as a percentage of the purchase share price.

$$\text{Return on Investment} = \frac{\text{dividend} + \text{capital gain}}{\text{purchase share price}} \times 100\%$$

<b>Example</b>	Tara bought 200 shares of Ajax Industries Inc. at \$6.50 per share on January 7. At the end of the year, she received dividends of \$0.25 per share and then sold all 200 shares at \$7.20 per share. What was her return on investment?
<b>Solution</b>	<p>Tara received in dividends: \$0.25 per share  Tara's capital gain: (\$7.20 – \$6.50) per share</p> <p><b>Tara's return on investment:</b></p> $\frac{\text{dividend} + \text{capital gain}}{\text{purchase share price}} \times 100\% = \frac{\$0.25 + \$0.70}{\$6.50} \times 100$ <p>That is, Tara's investment increased by about 14.62% in a single year.</p>

- 1 In the example above, what was the dividend yield on Ajax Industries Inc.? Yield = dividend/share price.
- 2 Why would a person buy a stock that pays no dividends?
- 3 Does your return on investment depend upon how many shares you own? Explain.
- 4 Alpha Enterprises has a share price of \$12.56 and pays a dividend of \$1.20 per share. Beta Enterprises has a share price of \$7.40 and pays a dividend of \$0.80 per share. Which company offers the higher yield?
- 5 Is it always better to buy a company that has a higher yield? Explain why or why not.
- 6 The price of one share of Gamma Industries fell from \$62.50 to \$58.70 in one year. It paid a dividend of \$3.00.
  - a) What was the yield on Gamma stock?
  - b) What was the return on investment for the shareholders?
- 7 The share price of Delta Enterprises rose from \$22.50 to \$28.35 in two years. It paid a dividend of \$2.00 the first year and \$2.10 the second year.
  - a) What was the yield on Delta stock in the first year?
  - b) What was the return on investment for the shareholders over the two-year period?

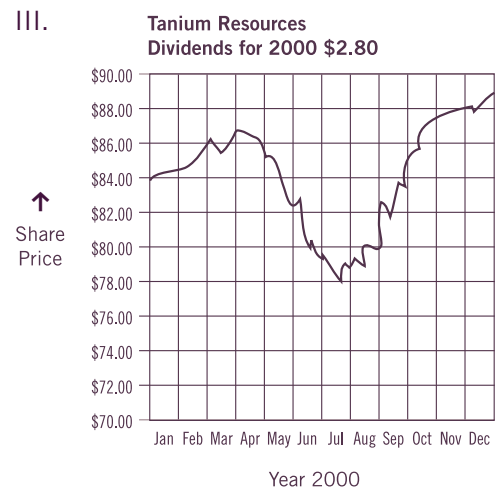
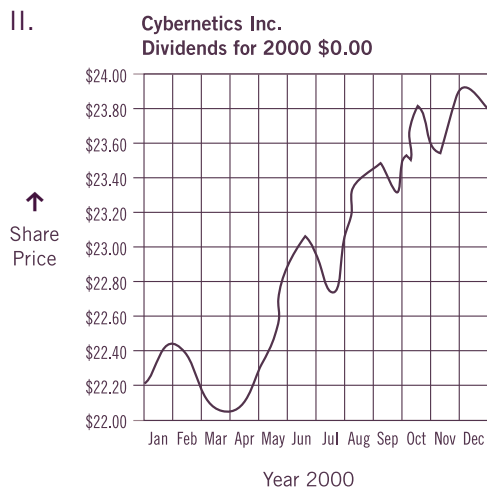
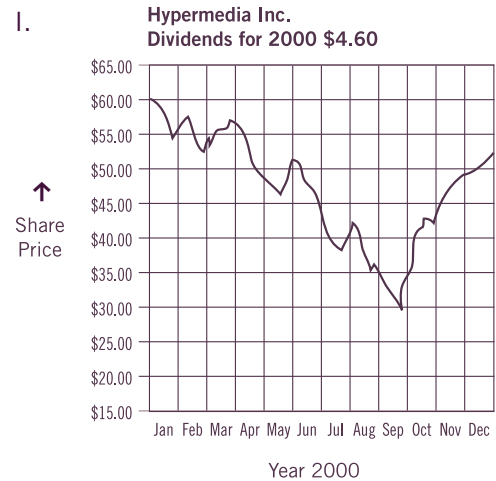


## Investigation: Rank the Companies as Investments

- 1 a) Use the share prices and the dividends of each of these companies to calculate the yield or return on investment during the year 2000. Record your answers in the table.
- b) List the companies in order from largest to smallest based on their return on investment.

Company name	Share Price Jan 2/2000	Share Price Dec 31/2000	Dividend in 2000	Yield	Return on Investment
Energy.com	\$12.55	\$10.50	\$0.45		
Platypus Inc.	\$32.50	\$48.30	\$0.75		
Action Data	\$16.85	\$19.05	\$0.00		
WindowClean	\$28.70	\$29.00	\$3.45		
Sporzstuff	\$52.65	\$51.85	\$1.85		

- 2 a) Use these graphs to help you calculate the return on investment for each stock between January 2 and December 31, 2000. Record your answers.
- b) List the companies in order from largest to smallest return on investment.



- 3 a) Assuming that you bought 200 shares of each stocks listed below at their lowest price over the past 52 weeks and that you sold them at their highest price, calculate your capital gain and your capital gain per share.

Year High	Year Low	Stock	Symbol	High	Low	Close	Chg	Vol	Div
112.80	34.00	Lazerlink.com	LLK	76.50	64.40	72.20	– 4.60	17203	0.50
45.80	28.30	Argon Pipes	ARP	32.75	32.25	32.50	+ 0.25	4531	0.10
22.45	14.00	Pharmex	PHX	21.80	21.40	21.40	–1.00	203	—

- b) Assume that in addition to your capital gain in Part a), you also received the dividend. Calculate your return on investment.
- c) For each stock, calculate your return on investment if you received the dividend but bought the stock at its highest share price and sold it at its lowest share price.
- 4 Get the page of the newspaper with Toronto Stock Exchange stock listings. Choose any three stocks from that page. Use the information from that page to complete this table.

Year High	Year Low	Stock Name	Symbol	High	Low	Close	Chg	Vol 00s	Div

- a) Assuming that you bought 100 shares of the stock at its lowest price over the past 52 weeks and that you sold it at its highest price, calculate your capital gain.
- b) Assume that in addition to your capital gain in Part a), you also received the dividend. Calculate your return on investment.
- c) For each stock, calculate your return on investment if you received the dividend but bought the stock at its highest share price and sold it at its lowest share price.

## Internet Investigation

### Accessing Stock Information from the Toronto Stock Exchange Web site

Choose 4 companies from the newspaper or the internet. Find their symbols in the newspaper. Visit the Toronto Stock Exchange (TSX) Web site at: [www.tsx.com](http://www.tsx.com)

Enter a symbol in the **Get Quote** box and click **Go**.



Make a table like the one below. Enter the 4 symbols in the **Symbol** column. Then complete the first row of the table. Note that on the Web site, the **Dividend** is identified in the “Indicated Dividend Rate” field. Repeat this for the other companies listed in your table.

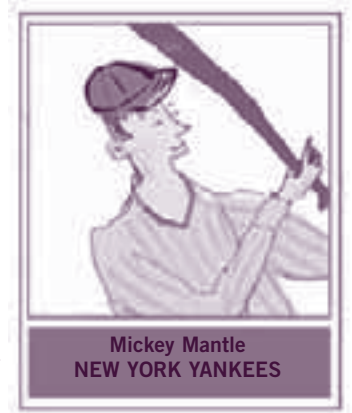
Year High	Year Low	Stock Name	Symbol	High	Low	Latest Share Price	Div

# The Law of Supply & Demand

You discovered that the Mickey Mantle baseball card that was bought for pennies in 1952 was selling for \$US 7 500 today. A 1952 baseball card of most other players sells for only a fraction of this amount. Why are prices different? The answer is that Mickey Mantle was one of the greatest sluggers of all time and so more people want the Mickey Mantle card.

In business terminology, we say that the Mickey Mantle card is in high demand. The price of an item in *high demand* is higher than the price of an item for which there is low demand.

Suppose thousands of original 1952 Mickey Mantle cards were discovered in an abandoned warehouse and there were enough for everyone to get as many as they wanted. Do you think anyone would pay \$US 7 500 for one of them?



When there are far more of an item than are needed or wanted, that item is said to be in *large supply*. When there are far fewer of an item than are needed or wanted, the price of the item tends to be higher because there is a short supply. The tendency of the price of an item to rise when it is in low supply and high demand, and to decline when the supply increases or the demand decreases is called the *Law of Supply and Demand*.

## Discuss

- Name an item that you think is in high demand.
- Why do you think it is in such high demand?
- If the item you named were almost sold out, would people be willing to pay more for one of the few that were left? Explain your answer.
- Why do you think van Gogh's painting of Dr. Gachet is so valuable?
- If people lost interest in art, would the price of the painting rise or fall? Explain.
- In Activity 9, you researched the British Guiana one penny stamp. How many stamps like this exist?
- Would the rarest stamp be worth as much if there were 10 000 of them? Explain why or why not.
- Describe what you think would happen to the price of gas if:
  - > it were discovered that the world's oil and gas reserves were almost completely depleted.
  - > a company invented a new car that could run on water instead of gas.
  - > explain how the Law of Supply and Demand applies to the price of gas.

## What Determines Price?

The Law of Supply and Demand can be described in a table like this one. Describe the meaning of each of the four cells in the table.

The price of a stock, like the price of collectibles, is based on the Law of Supply and Demand. Since the number of shares of a company (i.e., the supply) is fixed, the price is determined by the demand. What creates the demand for the stock in a particular company?

		SUPPLY	
		High	Low
DEMAND	High	Price is moderate	Price is high
	Low	Price is low	Price is moderate

Generally, the belief that the share price of the stock will increase, or that the company will pay high dividends, motivates people to buy a company's stock.

For each of the following scenarios, write a sentence or two to explain whether you think the share price of the stock will go up or down, giving reasons for your answer.

- 1 A telecommunications company announces that it received a new \$16 billion contract to set up communication networks in China.
- 2 A gold mining company announces that its exploration for gold in a large tract of land in northern Canada has discovered no evidence of gold in that area.
- 3 A biological research company announces that it has discovered a drug that reduces the size of cancerous tumours in mice.
- 4 An oil company has large reserves of oil and gas in North America when OPEC meets to discuss cutting back on the production of oil.
- 5 A company owns a large chain of retail stores when Statistics Canada reveals that consumer spending is down and unemployment is rising rapidly.
- 6 A hi-tech company that lost about \$20 million in each of the last three years announces that it will lose only \$1 million dollars in the current year.
- 7 A company has announced it will issue another 200 000 shares of its stock.
- 8 The President, Vice President, and Treasurer of a company have all resigned and will be replaced by new management.
- 9 A company has announced it will not pay dividends in the foreseeable future because it needs to pay down excessive debt.
- 10 A Canadian publisher of computer software merges with a computer hardware company that will equip all the new computers with the Canadian-developed software.



## Investigation: Using $P/E$ Ratios to Assess Demand

Today people can grow their money at about 3% without any risk by placing it in savings accounts, GICs or T-bills. Investments in stocks carry a higher risk because investors could lose money!

Because of the risk, people will only invest in stocks that offer a potentially greater rate of return. We might expect people to seek a yield of 8% or more as a return on investment when they buy stocks.

One way to assess the expected return on investment of a stock is to divide its share price,  $P$ , by its earnings per share,  $E$ . This ratio is called the  $P/E$  ratio. If the price is very high compared to the earnings, then the  $P/E$  ratio is large. A stock with a large  $P/E$  ratio is very expensive with respect to its earning potential. The people who pay this high price believe the stock has large potential earnings in future and high demand for it has forced its price higher. By calculating the  $P/E$  ratio of a stock, as in the example below, we can assess the level of demand for that stock.

<b>Example</b>	<p>a) In its most recent fiscal year, Lazerlink.com had earnings of \$1.40 per share. If its current share price is \$72.20, what is its <math>P/E</math> ratio?</p> <p>b) A typical <math>P/E</math> ratio for Lazerlink.com's competitors is 32. Is Lazerlink in greater demand than its competitors?</p>
<b>Solution</b>	<p>a) The <math>P/E</math> ratio for Lazerlink.com is</p> <div style="border: 1px solid black; padding: 10px; display: inline-block;"> <math display="block">\frac{\text{share price}}{\text{earnings per share}} = \frac{\\$72.20}{\\$1.40} = 51.60</math> </div> <p>b) Since <math>51.6 &gt; 32</math>, Lazerlink.com is more expensive and must be in higher demand than its competitors.</p>

- 1 A stock has a  $P/E$  ratio of 145. What does this tell you about the stock?
- 2 Use the Law of Supply and Demand to explain why the  $P/E$  ratio of a stock may rise above the  $P/E$  ratio of its competitors.
- 3 Do you agree with the following statement?  
*If the  $P/E$  ratio of a stock is higher than its competitors, then the demand for it must be greater than the demand for its competitors. Therefore it must be a better investment than its competitors.*  
 Explain why you agree or disagree.
- 4 An oil company has a  $P/E$  ratio of 15.5 and its share price is \$32.50. What were its earnings per share in its most recent fiscal year?
- 5 Read the information on the following page from each of these companies. Calculate the percentage yield and the  $P/E$  ratio for each company. Using the other information about the companies, consider the law of supply and demand and determine the potential return on investment for each company. Rank these companies in order from your first to your last choice as investments. Write a brief report giving reasons for your choice.

### Evergreen Forest Products

**Description:** This company buys lumber from companies in B.C. It then produces lumber products that it exports to Asia for construction of houses and commercial buildings

**Recent Events:** The Asian economies are in a slump. Housing construction has slowed. The price of lumber in B.C. is increasing and expected to go higher.

<b>Highest Share Price this year:</b>	\$9.96
<b>Lowest Share Price this year:</b>	\$6.80
<b>Share Price at Market Close:</b>	\$9.30
<b>Last Year's Earnings (per share):</b>	\$0.60
<b>Last Year's Dividend (per share):</b>	\$0.45

### DNA Biotech

**Description:** This company conducts research in the development of anti-cancer drugs.

**Recent Events:** DNA Biotech recently developed a new drug that shrinks cancerous tumors in mice. It is scheduled for tests on humans next month.

<b>Highest Share Price this year:</b>	\$14.85
<b>Lowest Share Price this year:</b>	\$3.25
<b>Share Price at Market Close:</b>	\$6.00
<b>Last Year's Earnings (per share):</b>	\$0.55
<b>Last Year's Dividend (per share):</b>	\$0.45

### Hip N' Cool Video

**Description:** This company rents videotapes of recent movies to the public.

**Recent Events:** The price of satellite dishes is decreasing and more television channels on satellite are offering recent movies on pay per view.

<b>Highest Share Price this year:</b>	\$12.18
<b>Lowest Share Price this year:</b>	\$10.40
<b>Share Price at Market Close:</b>	\$10.40
<b>Last Year's Earnings (per share):</b>	\$0.50
<b>Last Year's Dividend (per share):</b>	\$0.12

### Gatley Steel Company of Canada

**Description:** This company manufactures steel for Canadian-built cars.

**Recent Events:** Previously, interest payments on its debt has limited its profit margins. However, lower interest rates and a rising demand for cars in North America promise strong profits in the year ahead.

<b>Highest Share Price this year:</b>	\$22.55
<b>Lowest Share Price this year:</b>	\$16.40
<b>Share Price at Market Close:</b>	\$18.00
<b>Last Year's Earnings (per share):</b>	\$1.80
<b>Last Year's Dividend (per share):</b>	\$0.92

# Selecting Investments for Your Portfolio

To build enough wealth to achieve your financial goals, you need to invest as much of your earnings as possible. The kind of investments you choose depends on how quickly you want your money to grow, and how much *risk* you can take.

In the financial world, *risk* means the possibility of losing money on an investment. Usually, the higher the risk of losing money, the higher the expected return. For less risk, an investor will expect a smaller return. This relationship follows from the Law of Supply and Demand and is called the *risk-reward relationship*. If you choose low risk investments such as savings accounts, bonds, GICs or T-bills, you will not lose your money, but the growth rate will be small. If you want your money to grow quickly, you will need to choose higher risk investments such as real estate, mutual funds or stocks.

Investment Portfolio			
A <i>portfolio</i> can be simply defined as a range of investments that you own. A general rule is that people invest in a mix of higher and lower risk types of investments to maximize growth and reduce the risk of losing all their money. For example:			
Johan's Portfolio		Horatio's Portfolio	
GICs	\$5 000	GICs	\$2 000
Savings Acct	\$3 000	T-Bills	\$1 000
Stocks	\$2 000	Stocks	\$7 000
<b>Total Investment</b>	<b>\$10 000</b>	<b>Total Investment</b>	<b>\$10 000</b>
Johan has decided to include both higher and lower risk investments in his portfolio, but most of his money is in lower risk investments.		Horatio has decided to have both low and high risk investments but most of his portfolio is focussed in higher risk investments.	
When you decide how much risk you can tolerate, you can begin to decide which kinds of investments to include in your own portfolio.			

Name \_\_\_\_\_

## Investor Profile Self Test – Worksheet

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Complete the test below to help you determine how risk-tolerant you are.

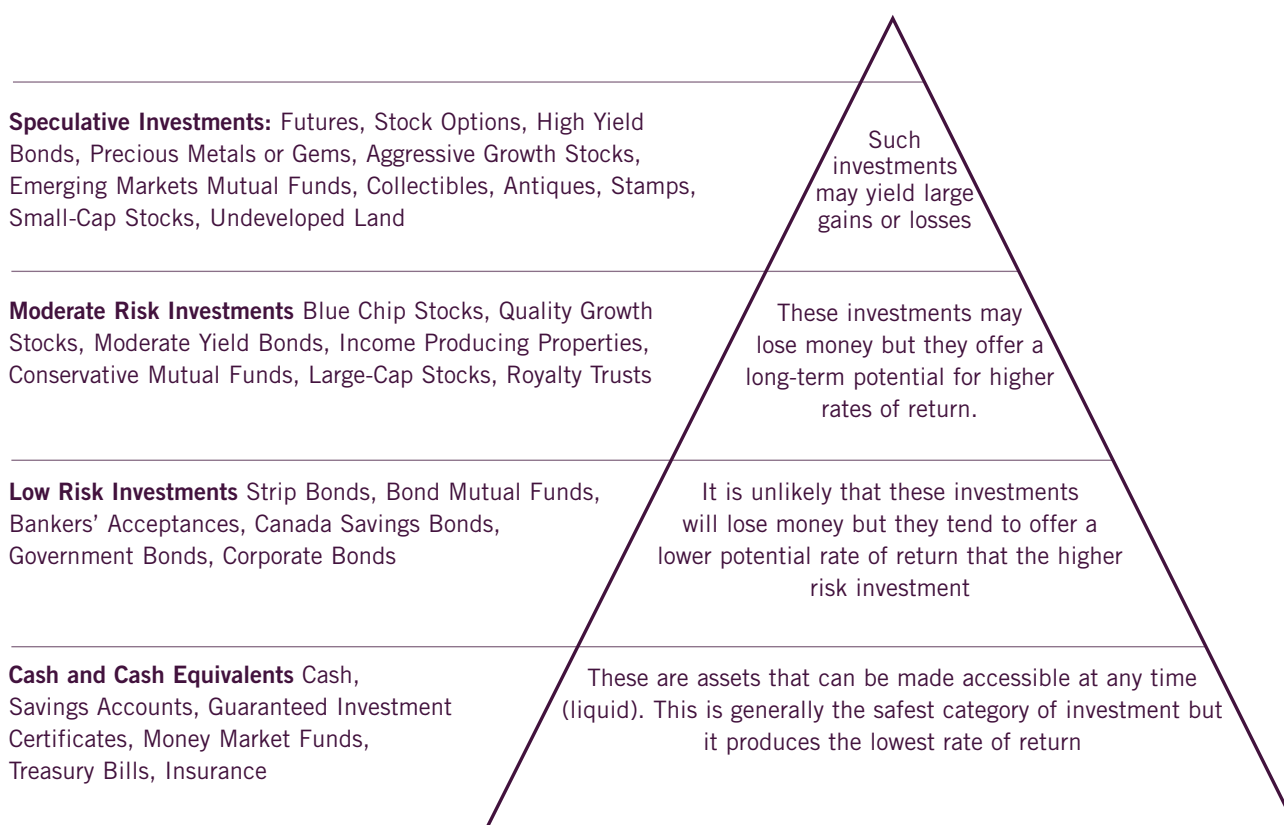
- 1 Given several different investment choices, I would choose the one that:
  - a) yields 3% with no risk
  - b) offers 6% with moderate risk
  - c) offers 12% with high risk
- 2 I prefer to have my investments grow slowly than to risk losing money by seeking higher returns.
  - a) agree
  - b) neither agree nor disagree
  - c) disagree
- 3 The portion of my portfolio that I would like to have in high risk-high return investments is:
  - a) 0%
  - b) 35%
  - c) 70%
- 4 One of two remaining tickets is the winning lottery ticket for \$1 000 000, and the other is a losing ticket. If I owned one of the tickets, I would:
  - a) sell my ticket for \$500 000
  - b) wait for the draw
  - c) auction off my ticket to the highest bidder
- 5 If a TV game show offered me the three following choices, the one I would choose is:
  - a) \$5 000
  - b) Toss a coin and receive \$12 000 for heads and nothing for tails
  - c) Select a card from a deck and receive \$50 000 only if its suit is spades.
- 6 When I invest, I want my portfolio to grow as follows:
  - a) slowly but surely
  - b) faster than most with some risk of losing money
  - c) much faster than most but with considerable risk of losing some money.
- 7 When you're young, it's important to try for the largest growth rate possible in your investments, because if you lose, you have enough time to rebuild your portfolio.
  - a) disagree
  - b) neither agree nor disagree
  - c) agree

Score your test by counting 1 point for each “a)” answer, 2 points for each “b)” answer and 3 points for each “c)” answer.

**My Total Score** \_\_\_\_\_

## Investment Risk Categories

The triangle below arranges various investment choices according to the risk-reward relationship. The higher the investment is located in the triangle, the higher the potential reward and the higher the risk. Since cash and cash equivalents offer minimal risk and low return, they are located at the bottom of the triangle. It is important to realize, however, that the types of investment listed under each section of the triangle are only a framework. Types of particular investments vary with economic conditions. The classification of a stock as low, moderate or high risk depends on the perspective of the investor. In a sense, risk is in the “eye of the beholder”. Careful analysis is the best way to choose investments.



- 1 Assume you have \$20 000 to invest. Using the investment risk weightings corresponding to the results of your investor profile self test, make a table to show how much money you can allocate to each of the four investment risk categories.

Score: Between 7 and 11		Score: Between 12 and 16		Score: Between 17 and 21	
Speculative	10%	Speculative	20%	Speculative	30%
Moderate Risk	30%	Moderate Risk	40%	Moderate Risk	50%
Low Risk	40%	Low Risk	30%	Low Risk	10%
Cash & Cash Equivalents	20%	Cash & Cash Equivalents	10%	Cash & Cash Equivalents	10%



## Investigation: Choosing Stocks from the Toronto Stock Exchange

Record in this table the percents and the dollar allocations that you computed on the previous page. In the first part of this activity, you will decide where to invest the speculative and moderate risk portions of your portfolio. But how do you decide whether a stock is speculative or moderate risk?

Low risk stocks usually pay dividends. Speculative stocks usually offer little or no dividends but may yield capital gains through increased share price. Also, the share price of a low risk stock does not usually fluctuate as much as the share price of a more speculative stock. Economists refer to the fluctuation of a stock price as its volatility. Speculative stocks have higher *volatility* than blue chip stocks. One measure of the volatility of a stock is given by the *simplified* volatility formula below.

$$\text{Volatility} = \frac{(\text{Year High} - \text{Year Low})}{\text{Current Share Price}} \times 100\%$$

Allocation of \$20 000	Percent	Dollars
Speculative		
Moderate Risk		
Low Risk		
Cash & Cash Equivalents		

### Internet Investigation 1

In the following activity, you will choose ten stocks on the Toronto Stock Exchange to research as potential investments.

#### Pre-Internet Activity

- 1 Choose companies to investigate. You can use the stock page in a newspaper to find the symbols for the companies in which you are interested. Make a list of these companies and their symbols.





## Choosing Stocks from the Toronto Stock Exchange

### Internet Activity

- 2 Access the Toronto Stock Exchange (TSX) Web site at [www.tsx.com](http://www.tsx.com)
  - a) From your list, enter your first symbol in the **Get Quote** box, and click on **Go**. The company information will be on the right side of the screen. Record any current information on that stock that you think is important to your decision on whether or not to buy it.
  - b) Click on the *Company Snapshot* link to learn the current financial health of that company. Record any relevant information.
  - c) Click on the *Price History* link to see how the price of this stock has changed in the recent past. Record any relevant information.
  - d) Click on the *News* link to learn of anything about the stock that you think may affect its future price. Record any relevant information.
  - e) Repeat the above for 9 other stocks, and use this information to complete the Post-Internet Activity.

### Post-Internet Activity

- 3 From your research, you can now choose stocks for your portfolio.
  - a) Record the company name, symbol and share price in the first row of your “Classification of Stocks” table.
  - b) Use the formula for volatility to classify each stock as *moderate risk* or *speculative risk*. Record your classification in the last column of your table.
  - c) Decide how much money you wish to invest in each speculative risk stock. Your total investment should match the amount of money you allotted on your Investor Profile table.
  - d) Calculate the number of shares of each company that you can buy with that amount.
  - e) Repeat these steps for your moderate risk stocks.
  - f) Make a table listing the stocks you have decided to purchase, the number of shares and the share price. Beside each stock, indicate whether it is speculative or moderate risk.

## Classification of Stocks as Speculative or Moderate Risk

Symbol	Company Name	Share Price	Number of Shares Bought	Relevant Information	Speculative or Moderate Risk

### Internet Investigation 2

#### Researching Fixed Income & Cash Equivalent Investments

Visit the CANNEX Web site at: [www.cannex.com](http://www.cannex.com)

- Using the tables in this Web site record:
  - the annual interest rate offered on savings accounts by two different financial institutions.
  - the annual interest rate offered on a one-year GIC.
- Use the Web site [www.bankofcanada.ca](http://www.bankofcanada.ca) to find the annual interest rates offered on treasury bills and on various bonds for no more than five years.
- Choose some low risk and cash equivalent investments to match the allotments in your table on the previous page. Record the amount of each investment in a table, showing the rate of interest earned, and the term to maturity.



## Monitoring Your Investment Portfolio

Julia scored 14 on the *Investor Profile Self Test* in the previous Activity, suggesting that she should allocate her investments according to the table on the right. On apportioning her \$20 000 in accordance with the percents given in the table, she determined the approximate amount she should invest in each type of asset.

Using the volatility formula you learned in the previous activity, Julia identified four of the ten stocks in her table as *speculative* or *growth stocks* and the others as *moderate risk stocks*. After gathering information on these speculative stocks, she selected three of them for her portfolio (see table below). On May 3, 2001 she made her stock purchases as presented in the *Summary of Speculative Stocks* table shown below.

Allocation of \$20 000	Percent	Dollars
Speculative	20%	\$4 000
Moderate Risk	40%	\$8 000
Low Risk	30%	\$6 000
Cash & Cash Equivalents	10%	\$2 000

Summary of Speculative Stocks							
Symbol	Company	Number of Shares	Share Price on May 3, 2001	Cost	Reasons for Choosing the Stock		
ZTA	ZETA	80	\$25.45	\$2 036.00	Good growth potential – Near its low price		
ITA	IOTA	230	\$4.30	\$989.00	Several new contracts – Digital Technology		
LDA	LAMDA	260	\$3.70	\$962.00	Newly developed skin test for Cholesterol		
Total Invested				\$3 987.00			
Commission @ 2%				\$79.74			
Total Cost				\$4 066.74	➡	Percent	Dollars
					Speculative	20%	\$4 000

## Discuss

- Julia's allocation table suggested that she invest \$4 000 in speculative stocks, but she invested only \$3 987. Why did she not invest exactly \$4 000?
- Julia decided to invest approximately \$2 000 in Zeta, and approximately \$1 000 in each of Iota and Lambda. How do you think she used these amounts to decide how many shares to purchase?
- Explain why Julia chose each of the three stocks that she purchased.
- Why do you think Julia recorded her reasons for purchasing the stocks?
- Explain what is meant by the row labelled *commission* and how it is calculated.

- 1** Using the speculative stocks you selected in Activity 13 and the amounts you decided to invest, make a *Summary of Speculative Stocks* like the one above.

Symbol	Company	Number	Share price on	Cost	Reasons for Choosing the Stock
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Symbol	Company	Number of Shares	Share price on _____ (date)	Cost	Reasons for Choosing the Stock
Total Invested					
Commission @ 2%					
Total Cost					

Of the ten stocks that Julia listed in her table, she identified six as *moderate risk* investments. After gathering information on these stocks from the Toronto Stock Exchange Web site, she selected three of them for her portfolio (see table below). On May 3, 2001 she made her stock purchases as shown in the *Summary of Moderate Risk Stocks* table shown below.

Summary of Moderate Risk Stocks																					
Symbol	Company	Number of Shares	Share Price on May 3, 2001	Cost	Reasons for Choosing the Stock																
AOC	Acme Oil	100	\$40.04	\$4 004.00	Pays Dividends – High demand for oil																
MMI	Multimedia Inc.	90	\$22.23	\$2 000.70	Pays Dividends – Several new contracts																
CMA	Cosmetica	70	\$28.74	\$2 011.80	Pays Dividends – Financial services will be in high demand as the population ages																
Total Invested				\$8 016.50	<table><tr><th>Allocation of \$20 000</th><th>Percent</th><th>Dollars</th></tr><tr><td>Speculative</td><td>20%</td><td>\$4 000</td></tr><tr><td>Moderate Risk</td><td>40%</td><td>\$8 000</td></tr><tr><td>Low Risk</td><td>30%</td><td>\$6 000</td></tr><tr><td>Cash &amp; Cash Equivalents</td><td>10%</td><td>\$2 000</td></tr></table>		Allocation of \$20 000	Percent	Dollars	Speculative	20%	\$4 000	Moderate Risk	40%	\$8 000	Low Risk	30%	\$6 000	Cash & Cash Equivalents	10%	\$2 000
Allocation of \$20 000	Percent	Dollars																			
Speculative	20%	\$4 000																			
Moderate Risk	40%	\$8 000																			
Low Risk	30%	\$6 000																			
Cash & Cash Equivalents	10%	\$2 000																			
Commission @ 2%				\$160.33																	
Total Cost				\$8 176.83																	

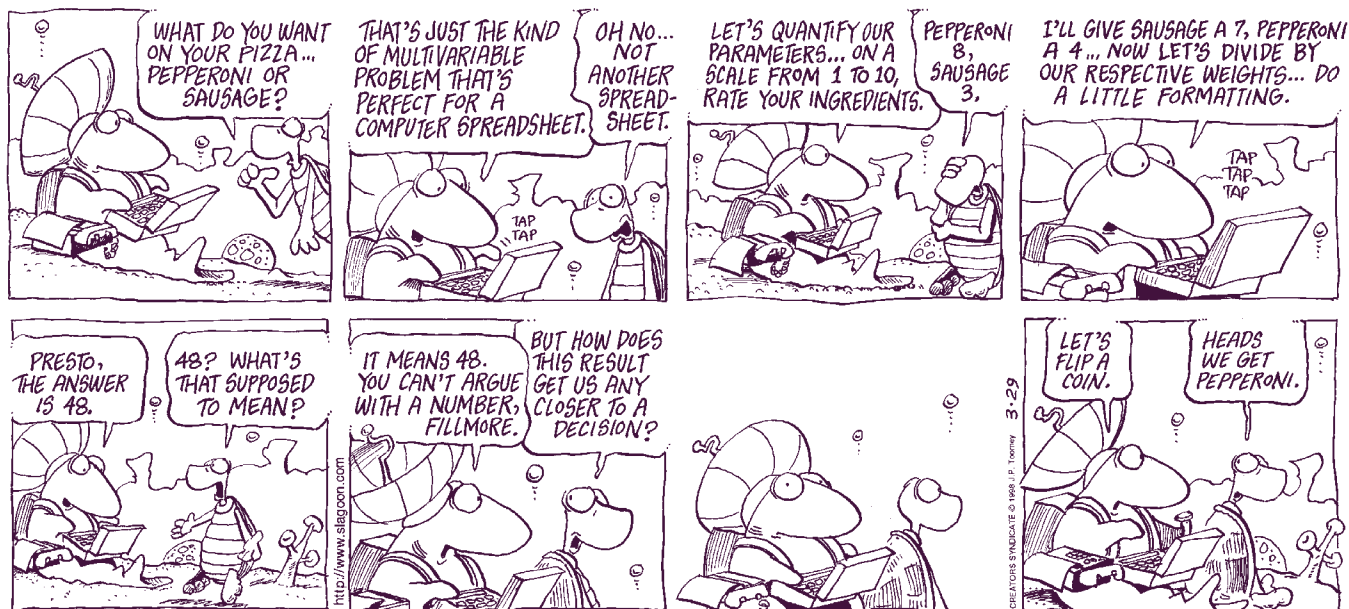
## Discuss

- Julia's allocation table suggested that she invest \$8 000 in speculative stocks, but she invested \$8 016.50. From where will the additional \$16.50 and the commission come?
- Julia decided to invest approximately \$4 000 in Acme Oil, and approximately \$2 000 in each of Multimedia Inc. and Cosmetica. How do you think she used these amounts to decide how many shares to purchase?
- Explain why Julia chose each of the three moderate risk stocks that she purchased.
- What is the advantage of buying stocks that earn dividends?

- 2 Using the moderate risk stocks you selected in Activity 13 and the amounts you decided to invest, make a *Summary of Moderate Risk Stocks* like the one above.



## Investigation: Creating a Spreadsheet for Your Portfolio



Jay is setting up a spreadsheet to help him keep track of, or *monitor* the value of, his stock portfolio. He purchased the stock of three companies: Alpha Industries, Beta Resources Ltd. and Gamma Enterprises Inc. He left spaces on his spreadsheet so he can enter the share price of each stock at the end of every week up to six weeks after the purchase of his stocks.

He also added columns to calculate automatically the market value of all his stock holdings at the end of the six-week period. The two rightmost columns compute the gain or loss and the percent gain or loss on his investment (not including commissions). Study his spreadsheet, then answer the questions on page 185.

	A	B	C	D	E	F	G	H	I	J	K
1	Share Prices of Alpha, Beta, and Gamma Stocks Over a Six-Week Period										
2											
3		Share price on	Share price	Share price	Share price	Share price	Share price	Share price	Market price	Gain/Loss	% Gain/Loss
4	Company	purchase date	1 Week Later	2 Weeks Later	3 Weeks Later	4 Weeks Later	5 Weeks Later	6 Weeks Later	of shares owned		
5	Alpha Industries	\$9.50							=300*\$H5	=\$I5-300*\$B5	=\$J5/(300*\$B5)*100
6	Beta Resources Ltd.	\$14.75							=200*\$H6	=\$I6-200*\$B6	=\$J6/(200*\$B6)*100
7	Gamma Enterprises Inc.	\$10.25							=400*\$H7	=\$I7-400*\$B7	=\$J7/(400*\$B7)*100

- 1 What stocks did Jay purchase and what did he pay per share for each stock?
- 2 How many shares of each stock did Jay purchase?
- 3 What formulas did Jay use to have the spreadsheet calculate each of the following:
  - a) the total cost of each stock?
  - b) the gain or loss on each stock after six weeks?
  - c) the *percent* gain or loss on each stock after six weeks?
- 4 Explain the meaning of one of the formulas in each of 3 a), 3 b) and 3 c).
- 5 Describe the order of operations you would use to evaluate the formula  $\$J5/(300*\$B5)*100$ .
- 6 Explain how to interpret a negative number in column J of the spreadsheet.
- 7 At the end of each week for six weeks following the purchase of the stocks, the share price of each stock is entered into the spreadsheet. If cell H5 contains the amount \$10.25, what amount will appear:
  - a) in cell I5?
  - b) in cell J5?
  - c) in cell K5?

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### Creating Your Own Spreadsheet

- 8 Create a spreadsheet like Jay's for your portfolio of speculative stocks. Include formulas like Jay's that leave six blank cells for the share price of each stock in the six weeks following this week.  
Enter the data from your *Summary of Speculative Stocks* into your spreadsheet.
- 9 Use the steps in Exercise 8 to create a spreadsheet for your portfolio of moderate risk stocks. Enter the data from your *Summary of Moderate Risk Stocks* into your spreadsheet. Add an additional column for dividends.
- 10 At the end of each of the next six weeks, enter the closing share price of each of your stocks into your spreadsheets for your speculative stocks and your moderate risk stocks. Record the share prices in your notebook in case of a computer crash.

In the *dividends* column of your spreadsheet enter the dividend for each stock (taken from the newspaper or the Toronto Stock Exchange Web site on the last day of your six-week data gathering). Divide this dividend by 8 to approximate the dividend received for one-eighth of a year.

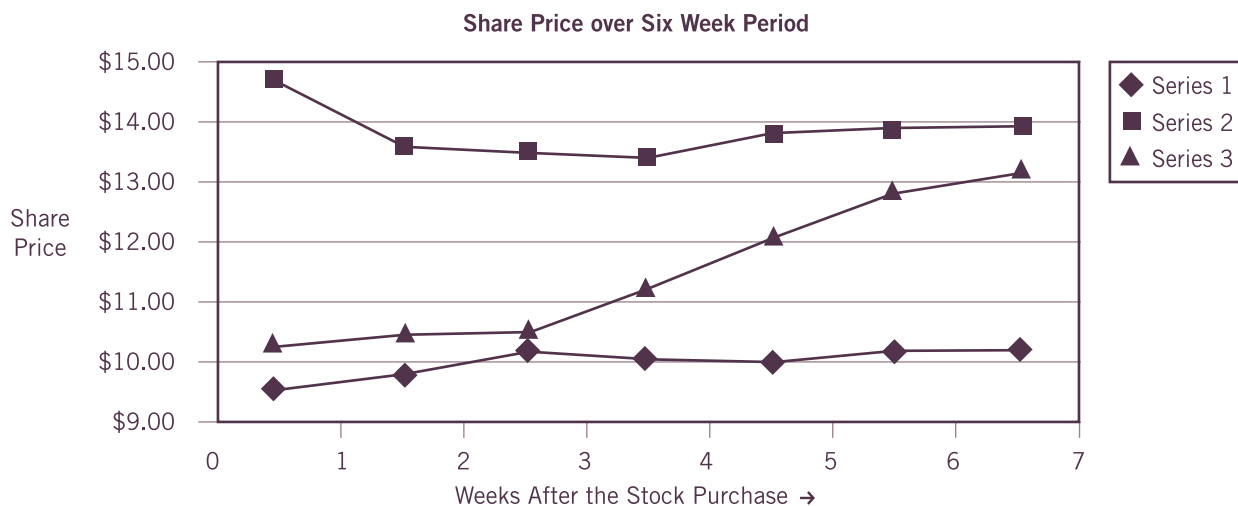
## Assessing Your Portfolio

Before you begin this activity, make sure that you have entered into your spreadsheets from Activity 14 the share prices of your stocks over the past six weeks. Jay's spreadsheet, with the share prices included, is shown below in both formula and numerical display.

Formula Display											
	A	B	C	D	E	F	G	H	I	J	K
1			Share Prices of Alpha, Beta, and Gamma Stocks Over a Six-Week Period								
2											
3		Share price on	Share price	Share price	Share price	Share price	Share price	Share price	Market price	Gain/Loss	% Gain/Loss
4	Company	purchase date	1 Week Later	2 Weeks Later	3 Weeks Later	4 Weeks Later	5 Weeks Later	6 Weeks Later	of shares owned		
5	Alpha Industries	\$9.50	\$9.75	\$10.20	\$10.05	\$10.00	\$10.20	\$10.25	=300*\$H5	=\$I5-300*\$B5	=\$J5/(300*\$B5)*100
6	Beta Resources Ltd.	\$14.75	\$13.64	\$13.51	\$13.46	\$13.86	\$13.90	\$13.95	=200*\$H6	=\$I6-200*\$B6	=\$J6/(200*\$B6)*100
7	Gamma Enterprises Inc.	\$10.25	\$10.40	\$10.50	\$11.25	\$12.08	\$12.82	\$13.25	=400*\$H7	=\$I7-400*\$B7	=\$J7/(400*\$B7)*100

Numerical Display											
	A	B	C	D	E	F	G	H	I	J	K
1			Share Prices of Alpha, Beta, and Gamma Stocks Over a Six-Week Period								
2											
3		Share price on	Share price	Share price	Share price	Share price	Share price	Share price	Market price	Gain/Loss	% Gain/Loss
4	Company	purchase date	1 Week Later	2 Weeks Later	3 Weeks Later	4 Weeks Later	5 Weeks Later	6 Weeks Later	of shares owned		
5	Alpha Industries	\$9.50	\$9.75	\$10.20	\$10.05	\$10.00	\$10.20	\$10.25	\$3 075.00	\$225.00	7.89
6	Beta Resources Ltd.	\$14.75	\$13.64	\$13.51	\$13.46	\$13.86	\$13.90	\$13.95	\$2 790.00	−\$160.00	−5.42
7	Gamma Enterprises Inc.	\$10.25	\$10.40	\$10.50	\$11.25	\$12.08	\$12.82	\$13.25	\$5 300.00	\$1 200	29.27

Jay highlighted the cells from B5 through H7 and selected the chart making option in his computer program. After selecting the line graph option and choosing some labelling and display features, he obtained this graph showing the changes in the share prices of his three stocks during the previous six weeks.

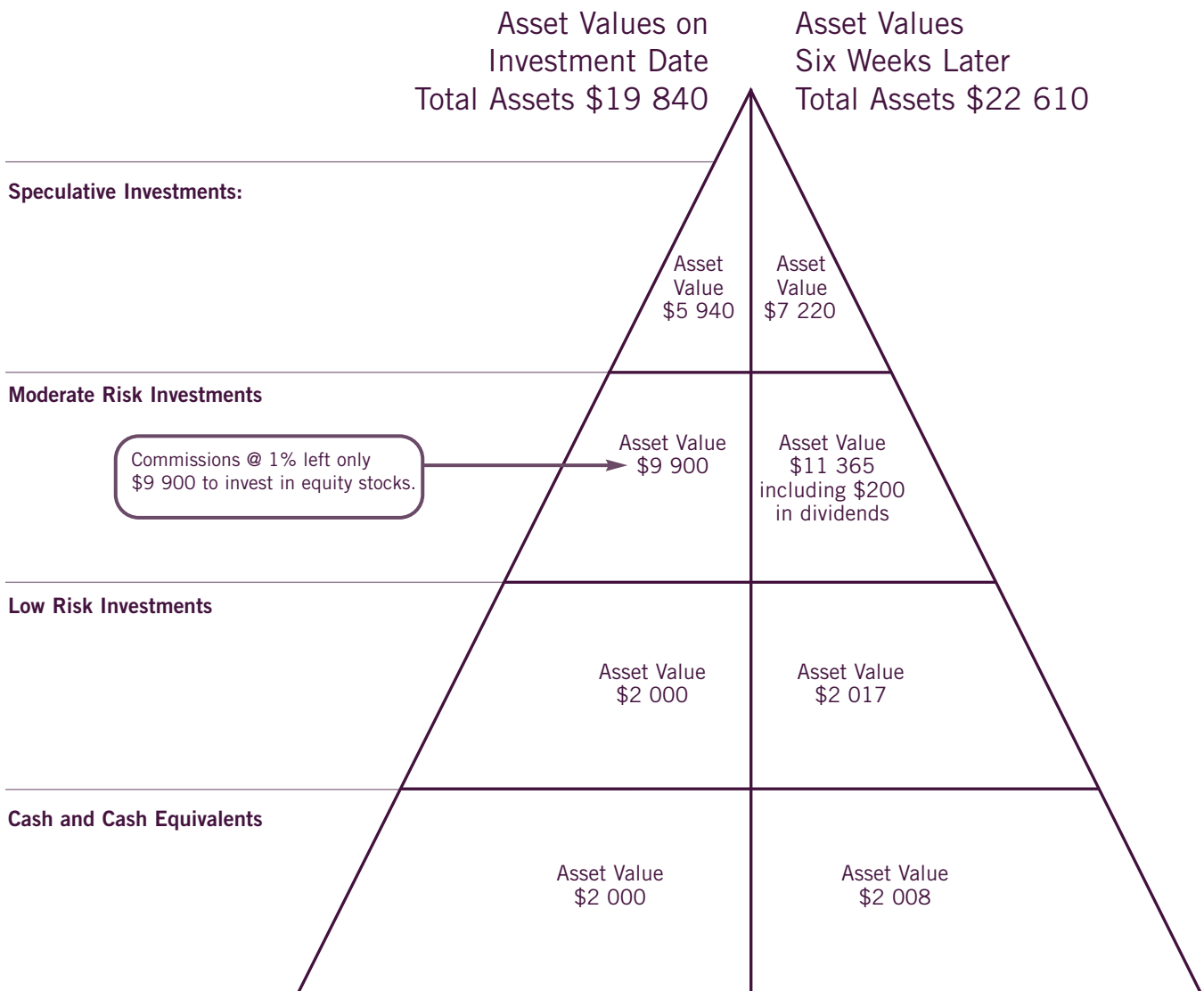


- 1 On the graph, which company is represented by:
  - a) the top line?
  - b) the middle line?
  - c) the bottom line?
- 2 During the six-week period following the purchase of the stock:
  - a) which stock increased steadily?
  - b) which stock decreased in value?
  - c) which stock gained the most in value?
- 3 What was the lowest share value that Alpha Industries reached during the six-week period?
- 4 Which of Jay's stocks do you think has been the best investment so far? Explain.
- 5 Use your portfolio of speculative stocks spreadsheet to construct a line graph of the share prices of your speculative stocks during the past six weeks. Print out the numerical display version of your spreadsheet and your graph.
- 6 Repeat Exercise 5 for your moderate risk stocks. Print out your spreadsheet and your graph.

# Reporting on Your Investment Portfolio

Jay had scored 19 on the Investor Profile Self Test, so he allocated the amounts shown in the table to each type of investment. The stocks shown on his spreadsheet were his *moderate risk stocks* from which he also received \$200 in dividends. His original investments in stocks are slightly less than those shown in the table to allow for the broker's commission. He used the investment pyramid below to compare his asset values at the end of the six-week period with his original assets.

Allocation of \$20 000	Percent	Dollars
Speculative	30%	\$6 000
Moderate Risk	50%	\$10 000
Low Risk	10%	\$2 000
Cash & Cash Equivalents	10%	\$2 000



## Your Final Project

Your final project is to create a report on your investment portfolio. To prepare your report you need:

- your list of fixed income and cash equivalent investments from Activity 13.
- your *Summary of Speculative Stocks* and your *Summary of Moderate Risk Stocks* from Activity 14.
- the spreadsheets for your speculative and moderate risk stocks.
- the graphs of your speculative and moderate risk stocks.

Write a report on your investments divided into four sections as shown below.

<p><b>Part I</b></p> <p><b>Speculative Stock Investments</b> This part of your report includes:</p> <ul style="list-style-type: none"> <li>• <i>Summary of Speculative Stocks</i></li> <li>• Spreadsheet for Speculative Stocks</li> <li>• Graph of Speculative Stocks</li> </ul> <p><b>A brief written report on:</b></p> <ul style="list-style-type: none"> <li>• the original reasons for selecting those particular stocks.</li> <li>• an analysis of their performance.</li> <li>• any suggestions for changes in the speculative stock portfolio.</li> </ul>	<p><b>Part II</b></p> <p><b>Moderate Risk Stocks</b> This part of your report includes:</p> <ul style="list-style-type: none"> <li>• <i>Summary of Moderate Risk Stocks</i></li> <li>• Spreadsheet for Moderate Risk Stocks</li> <li>• Graph of Moderate Risk Stocks</li> </ul> <p><b>A brief written report on:</b></p> <ul style="list-style-type: none"> <li>• the original reasons for selecting those particular stocks.</li> <li>• an analysis of their performance.</li> <li>• any suggestions for changes in the moderate risk stock portfolio.</li> </ul>
<p><b>Part III</b></p> <p><b>Low Risk &amp; Cash Equivalent</b> This part of your report includes:</p> <ul style="list-style-type: none"> <li>• the list of fixed income and cash equivalent investments from Activity 14</li> </ul> <p><b>A brief written report on:</b></p> <ul style="list-style-type: none"> <li>• the interest rate and the amount invested in each fixed income and cash equivalent investment.</li> <li>• the interest earned in 1/8 of a year (approximately six weeks).</li> </ul>	<p><b>Part IV</b></p> <p><b>Investment Triangle</b> In this part of your report, create an investment triangle like the one on the previous page for your investment portfolio.</p> <p>Compare the values of your assets on the purchase date and six weeks later.</p> <p>Describe any changes you might make to your portfolio and give reasons for the changes.</p>